REMARKS

The Office Action dated July 6, 2009 has been received and carefully noted. The following remarks are submitted as a full and complete response thereto.

Claims 1 and 3-10 are currently pending in the application and are respectfully submitted for consideration.

Claim Rejections Under 35 U.S.C. § 103

The Office Action rejected claims 1 and 3-10 under 35 U.S.C. §103(a) as being allegedly unpatentable as obvious over Higaki (U.S. Publication No. 2004/0028260), in view of Kuno (U.S. Patent No. 5,467,403) and Ishii (U.S. Patent No. 6,278,904). The Office Action took the position that Higaki discloses all the elements of the claims with the exception of "image transmitting means for transmitting only the cut out portion of the image including the face image to an external terminal," and "means for monitoring state variables comprising a current position of the robot and the image transmitting means transmitting the monitored state variables in addition to the cut out face image." The Office Action then cited Kuno and Ishii as allegedly curing the deficiencies of Higaki. Applicants respectfully traverse this rejection.

Claim 1, upon which claims 3-9 are dependent, recites an image transmission system for a mobile robot, which includes a camera for capturing an image as an image signal, and human detecting means for detecting a human from the captured image. The

system further includes a power drive unit for moving the entire robot toward the detected human, and face identifying means for identifying a position of a face of the detected human. The system further includes face image cut out means for cutting out a portion of the captured image of the detected human so that the portion of the image includes a face image of the detected human, and image transmitting means for transmitting only the cut out portion of the image including the face image to an external terminal. The system further includes means for monitoring state variables comprising a current position of the robot, the image transmitting means transmitting the monitored state variables in addition to the cut out face image.

Claim 10 recites an image transmission system for a mobile robot, which includes a camera for capturing an image as an image signal, and human detecting means for detecting a human from the captured image. The system further includes a power drive unit for moving the entire robot toward the detected human, and image cut out means for cutting out a portion of the captured image so that the portion of the image includes an image of the detected human according to information from the camera. The system further includes image transmitting means for transmitting only the cut out portion of the image including the human image to an external terminal, and means for monitoring state variables comprising a current position of the robot, the image transmitting means transmitting the monitored state variables in addition to the cut out face image.

As will be discussed below, the combination of Higaki, Kuno, and Ishii fails to disclose or suggest all of the elements of the claims, and therefore fails to provide the features discussed above.

Higaki describes a posture recognition apparatus which recognizes instructions signified by postures of persons present in the surroundings, from images obtained with an image capture device. The apparatus includes a left side and right side camera 1L and R1 which generate a color image 81, a processing section 5 employing mainly image processing, a setting file 71 in which the relationships between human postures and corresponding instructions are pre-defined, a face database 72 in which human facial recognition information is pre-defined, and a drive control section 9 that controls the drive parts of the apparatus (see Higaki at paragraph 0041). Higaki further describes an image correction processing system 51 which performs corrections of calibration and rectification with respect to the images captured by the cameras 1L and 1R, a 3D image generation section 52 which generates a 3D image 84 from the color image 81, and an outline extraction section 54 which extracts an outline from the 3D image 84 (see Higaki at paragraphs 0042-0043).

Kuno describes a monitoring system including a robot which has a video camera in its head, and a fixed video camera installed in a sickroom (see Kuno at col. 3, lines 33-39, and col. 4, lines 8-10). Kuno further describes electronic diagnosing devices, such as an electronic hemadynamometer and an electrocardiograph also installed in the sickroom

(see Kuno at col. 3, lines 36-40). The video camera in the robot and the fixed video camera generate video signals representing the image of the subject. The electronic sensors, such as the hemadynamometer and the electrocardiograph, output diagnosis signals, representing the physical conditions of the subject. The video signals and the diagnosis signals are input to a signal processor, and the processor processes these input signals, thereby generating image data and diagnosis data (see Kuno at col. 4, lines 8-24). The image data and diagnosis data are subsequently displayed on separate consoles (see Kuno at col. 5, lines 26-30).

Ishii describes a floating type robot, which includes a floating device which allows an entire robot main body to float in a predetermined space (see Ishii at Abstract). Specifically, Ishii discusses a floating robot 10 which includes an image sensor 11, such as a visible, infrared, or ultraviolet sensor (see Ishii at col. 2, line 60 – col. 3, line 3; Figure 1). Ishii further describes that the floating robot 10 includes an information processing device 14, such as a microcomputer, that has a GPS function, and that executes information processing and control (see Ishii at col. 3, lines 7-10; Figure 1). When the floating robot 10 flies in a site such as an airport, the image sensor 11 picks up an image of persons around the robot 10, and if the floating robot 10 discovers a person who stays at the same location for a certain time period, the information processing device 14 recognizes its own position using the GPS function, and the floating robot 10 moves to a location close to the discovered person, so that the person can recognize the

floating robot (see Ishii at col. 3, lines 33-50). The robot 10 further includes an image display device 15 which displays image information useful for the specified person (see Ishii at col. 2, lines 10-26).

Applicants respectfully submit that Higaki, Kuno, and Ishii, whether considered individually or in combination, fail to disclose, teach, or suggest, all of the elements of the present claims. For example, the combination of Higaki, Kuno, and Ishii fails to disclose, teach, or suggest, at least, "the image transmitting means transmitting the monitored state variables in addition to the cut out face image," as recited in independent claims 1 and 10.

As the Office Action correctly concluded, Higaki and Kuno, whether considered individually or in combination, fail to disclose, or suggest, the aforementioned limitation of independent claims 1 and 10 (see e.g. Office Action at page 9). Furthermore, Ishii fails to cure the deficiencies of Higaki and Kuno.

The Office Action alleged that col. 5, lines 10-15 of Ishii discloses the aforementioned limitation of independent claims 1 and 10, by describing that information captured through an image sensor 11 is used for the purpose of detecting a current position of the robot 10 and is transferred externally through the communications device 19 (see e.g. Office Action at page 9). Contrary to the Office Action's position, the information captured through the image sensor 11 does not disclose, or suggest, state variables comprising a current position of the robot. Instead, as discussed in Ishii, the

information captured through image sensor is the underlying image data picked up by the image sensor 11 (see Ishii at col. 3, lines 36-37). It is clear from the discussion of Ishii that the information processing device 14 uses the image data of the image sensor 11 and the GPS function to determine a current position of the robot 10 (see Ishii at col. 3, lines 33 – 48). Thus, the image data of the image sensor 11, by itself, does not determine a current position of the robot, and thus, cannot be considered a monitored state variable comprising a current position of the robot. Because the image data of the image sensor 11 cannot be considered a monitored state variable comprising a current position of the robot, the discussion of transferring information captured through the image sensor 11 to an external device in Ishii, does not disclose, or suggest, transmitting monitored state variables in addition to a cut out face image.

In the "Response to Arguments" section, the Office Action alleged that the image display device 15 of Ishii, in addition to the communication device 19, is an image transmitting means, because the image display device "provides information about the current position of the robot if it is to be any use in the collection of the monitoring information for managing a wide space…as discussed in column 5, lines 40-42 [of Ishii]" (see Office Action at page 3). This appears to be a shift in position, as the previous Office Action merely alleged that the communication device is an image transmitting means. Applicants respectfully submit that this position is erroneous as well. Contrary to the Office Action's position, Ishii fails to disclose, or suggest, that the image display

device 15 provides information about the current position of the robot 10. Instead, Ishii specifically states that the image display device 15 displays commercial information or information useful for a person, upon detection of the person (see Ishii at col. 3, lines 48-50). Ishii further describes examples of the commercial or useful information. For example, if the public space is an airport, image display device displays an operation guide for selecting check-in and purchase of an airport ticket and various arrival/departure statuses (see Ishii at col. 4, lines 8-20). This commercial or useful information does not include a current position of the robot. Thus, the image display device 15 of Ishii does not transmit monitored state variables, where the monitored state variables comprise a current position of the robot.

The Office Action further alleged that the claim limitations of claim 1 do not require that an image sensor determine a current position of the robot, and instead, claim 1 simply requires "means for monitoring state variables comprising a current position of the robot" (see Office Action at page 4). As a threshold matter, Applicants respectfully submit that the Office Action has omitted a relevant portion of the limitation of claim 1. Namely, claim 1 recites in part, "means for monitoring state variables comprising a current position of the robot, the image transmitting means transmitting the monitored state variables in addition to the cut out face image." Thus the Office Action's characterization of claim 1 on page 4 of the Office Action is incorrect.

Furthermore, it is respectfully submitted that Applicants have never argued that the claim limitations of claim 1 require an image sensor to determine a current position of the robot. Instead, Applicants have argued, and continue to argue, that claim 1 requires that the transmitting means transmit the monitored state variables, where the state variables comprise a current position of the robot. Because the information captured through the image sensor 11 of the robot 10 of Ishii does not include a current position of the robot, and because claim 1 requires that the monitored state variables comprise a current position of the robot, the information captured through the image sensor 11 in Ishii can not be properly compared to a monitored state variable as recited in claims 1 and 10.

Finally, the Office Action alleged that at column 5, lines 17-22, Ishii discloses that the floating type robots communicate with one another, so that information obtained by respective robots are used commonly as the common information, and further alleged that "this information must include current position information of the other robot … in order to provide any meaning information" (see Office Action at pages 5-6, emphasis added). Applicants respectfully submit that the cited portion of Ishii merely describes that the robots of Ishii can communicate the image data captured through the image sensor, and is completely silent as to the position of the robot. Thus, Ishii fails to disclose that a floating type robot communicates a current position with another robot, and the mere

statement in the Office Action that a reference must disclose a particular feature is not sufficient to establish that the reference does in fact disclose that feature.

Therefore, the combination of Higaki, Kuno, and Ishii fails to disclose, teach, or suggest, all of the elements of independent claims 1 and 10. Accordingly, Applicants respectfully request that this rejection be withdrawn.

Claims 3-9 depend upon independent claim 1. Thus, Applicants respectfully submit that claims 3-9 should be allowed for at least their dependence upon independent claim 1, and for the specific elements recited therein.

Double Patenting

The Office Action provisionally rejected claims 1 and 10 under the judicially created doctrine of non-statutory obviousness-type double patenting over claim 1 of copending Application No. 10/814,343 in view of Kuno (U.S. Patent No. 5,802,494). The Office Action alleged that claim 1 of copending Application No. 10/814,343 "discloses" all the elements of the claims with the exception of "a face identifying means, a face image cut out means, and means for monitoring state variables comprising a current position of the robot, the image transmitting means transmitting the monitored state variables in addition to cut of face image." The Office Action further alleged that Kuno cure the deficiencies of claim 1 of copending Application No. 10/814,343. (See Office Action at pages 13-14).

Submitted herewith is a Terminal Disclaimer under 37 C.F.R. § 1.321(c). This Terminal Disclaimer effectively moots the double-patenting rejection. Accordingly, Applicants respectfully request that the rejection be withdrawn.

Based on the above discussion, Applicants respectfully submit that the cited prior art references fail to disclose or suggest all of the elements of the claimed invention. These distinctions are more than sufficient to render the claimed invention unanticipated and unobvious. It is therefore respectfully requested that all of claims 1 and 3-10 be allowed, and this application passed to issue.

If for any reason the Examiner determines that the application is not now in condition for allowance, it is respectfully requested that the Examiner contact, by telephone, the applicants' undersigned representative at the indicated telephone number to arrange for an interview to expedite the disposition of this application.

In the event this paper is not being timely filed, the applicants respectfully petition for an appropriate extension of time. Any fees for such an extension together with any additional fees may be charged to Counsel's Deposit Account 50-2222.

Respectfully submitted,

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